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In the Supreme Court of the United States

OCTOBER TERM, 1964

No. ——

UNITED STATES OF AMERICA, PETITIONER

v.

BERT N. ADAMS, ET AL.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CLAIMS

The Solicitor General, on behalf of the United States, prays that a writ of certiorari issue to review the judgment of the United States Court of Claims entered in this case on April 17, 1964.

OPINION BELOW

The opinion of the Court of Claims (App., *infra*, pp. 17–37) is reported at 330 F. 2d 622.

JURISDICTION

The judgment of the Court of Claims was entered on April 17, 1964 (App., *infra*, p. 37) and a timely petition for rehearing was denied on October 16, 1964 (App., *infra*, pp. 39–40). By order dated January 21, 1965, the Chief Justice extended the time for petitioning for certiorari to and including February 13,

1965. The jurisdiction of this Court is invoked under 28 U.S.C. 1255(1).

QUESTION PRESENTED

Respondent secured letters patent on a battery identical in design with one patented sixty years earlier. The difference between respondent's battery and the prior art is that respondent substituted two acknowledged equivalents for electro-chemical components (the two electrodes) of the earlier battery. The question presented is whether the ruling of the court below, upholding the patent issued to respondent, seriously departs from the constitutional and statutory standard of invention.

STATUTES INVOLVED

Title 28 of the United States Code provides in pertinent part:

> § 1498. Whenever an invention described in and covered by a patent of the United States is used or manufactured by or for the United States without license of the owner thereof or lawful right to use or manufacture the same, the owner's remedy shall be by action against the United States in the Court of Claims for the recovery of his reasonable and entire compensation for such use and manufacture.
>
> For the purposes of this section, the use or manufacture of an invention described in and covered by a patent of the United States by a contractor, a subcontractor, or any person, firm, or corporation for the Government and with the authorization or consent of the Government, shall be construed as use or manufacture for the United States.

Title 35 of the United States Code provides in pertinent part:

§ 101. Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

§ 102. A person shall be entitled to a patent unless—

(a) The invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, * * *

* * * * *

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or * * *

* * * * *

§ 103. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Pat-

entability shall not be negatived by the manner in which the invention was made.

* * * * *

§ 282. A patent shall be presumed valid. The burden of establishing invalidity of a patent shall rest on a party asserting it.

The following shall be defenses in any action involving the validity or infringement of a patent and shall be pleaded:

* * * * *

(2) Invalidity of the patent or any claim in suit on any ground specified in part II of this title as a condition for patentability,

* * * * *

STATEMENT

This suit was brought against the United States in the Court of Claims under 28 U.S.C. 1498 to recover for infringement of an alleged invention covered by United States Letters Patent No. 2,125,752, issued on June 22, 1943, to Bert N. Adams.[1] The "invention" is a battery designed to generate electricity by chemical interaction.[2] Simply stated, the Adams' battery consists of a glass jar into which are placed two electrodes. One is made of magnesium and is in the shape of a hollow cylinder. The second electrode, a rod

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[1] The respondents also sought damages under 28 U.S.C. 1491 for breach of implied contract. Initially, the Court of Claims found it unnecessary to pass upon the contract claim, but in its *per curiam* denial of the United States' petition for rehearing it held: "The facts in this case do not establish the existence of a contract, express or implied, between defendant and plaintiffs" (*infra*, pp. 38–39).

[2] The claims in suit and the specifications and drawings of respondents' patent appear *infra*, pp. 27–29.

made of "fused" cuprous chloride, is positioned inside the hollow magnesium electrode. Designation of the cuprous chloride electrode as "fused" is descriptive of the fact that it is the product of a process which bonds together copper and chlorine by melting and casting at 400° to 500° centigrade. The glass container, including the area between the two electrodes, is filled with ordinary tap water. An electro-chemical reaction between the water in the jar, the magnesium, and the cuprous chloride, produces electrical voltage sufficient to energize a small electrical device, such as a lamp bulb.

On January 10, 1942, Adams disclosed his battery to the Army's Chief Signal Officer and on January 8, 1942, to the Navy Department. Discovering that the Adams' battery, because of its unpredictable exothermic reaction, was impracticable for military purposes, the Army undertook to improve it. After extended experimentation, it found that it obtained satisfactory results by using the cuprous chloride in the form of a paste obtained by heating that chemical compound at low temperatures.[3]

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[3] By use of the Army's method, the paste is affixed to grid or mesh pellets approximating the size of a postage stamp. Each pellet is encased by an absorbent cotton bilulous separator and a series of these wafer-like electrodes are stacked in a wax paper box (approximately 3″ x 6″). When use of the battery is desired, water is poured into the box. The water drains out but the cotton absorbs enough moisture to activate the battery. In preparing the "pasted" electrodes there is no need to heat the cuprous chloride at temperatures even closely approaching the 400°–500° centigrade temperature to which cuprous chloride must be subjected in fashioning one of the electrodes employed in the Adams' battery.

In response to the claim of infringement, the United States asserted as its primary defense that the Adams' patent was invalid for lack of invention over the prior art.[4] An 1883 patent (No. 282,634) issued to one P. S. Hayes describes a battery comprised of a water-filled jar into which are immersed two electrodes, one of fused silver chloride, the other of zinc. In the Adams' battery, the fused silver chloride electrode is replaced with one of fused cuprous chloride and a magnesium electrode is substituted in place of the zinc electrode. However, those substitutions were of mere equivalents—as was admitted, and as the prior art disclosed, silver chloride and cuprous chloride, and zinc and magnesium, are interchangeable as electrode materials. Those admissions and the teachings of the prior art references notwithstanding, the trial commissioner upheld the Adams' battery patent and in a *per curiam* opinion the Court of Claims summarily adopted the Commissioner's findings and conclusions.

REASONS FOR GRANTING THE WRIT

The decision below declares that one who has merely "selected *specific* components from the group of known battery components and found that the *combination* of these specific components resulted in a workable battery having unique and unexpected characteristics" (App., *infra*, p. 22; [emphasis in

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[4] Assuming, *arguendo*, the validity of the Adams' battery patent, the government argued, in the alternative, that it was not infringed by the batteries developed by the Army, pointing out that the Adams' patent, by its own terms, is limited to batteries containing a *fused* cuprous chloride electrode.

original]) is deserving of the monopoly conferred by a patent. We challenge the ruling not because the patentability of the Adams battery is a matter of great intrinsic importance, but because we believe that this case sharply illustrates a growing tendency in the lower federal courts to adopt and apply a new and much laxer standard of invention which, in its aggregate manifestations, seriously impairs efforts to maintain a predominantly competitive economy by creating countless unnecessary and unwarranted monopolies.

1. The decision below pronounced the Adams battery patentable notwithstanding the court's recognition (see App., *infra*, p. 19) that the battery is the result of substituting acknowledged electrochemical equivalents for components in a battery patented 60 years before the filing of the Adams application. We think that there is need for this Court to restate, as it has in times past, the proposition that such minor technical advances are not to be rewarded with patent monopolies.

In discharge of its constitutional responsibility "to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries * * *" (Art. I, Section 8, cl. 8), Congress has provided, by recent codification, that a patent may not be obtained "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a

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person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. 103. From early times, the cases have taught that the improvement of a device by replacing one or more of its components with *known* equivalents does not constitute invention, even though the newly constituted device enjoys increased efficiency or utility. See, *e.g.*, *Smith* v. *Nichols,* 88 U.S. 112, 118–119; *Dunbar* v. *Myers,* 94 U.S. 187, 199; *Dow Chemical Co.* v. *Halliburton Oil Well Cementing Co.,* 324 U.S. 320, 330; *Western Willite Co.* v. *Trinidad Asphalt Mfg. Co.,* 16 F. 2d 446, 450 (C.A. 8), certiorari denied, 274 U.S. 737; *Naamlooze Venootschafs* v. *Coe,* 132 F. 2d 573 (C.A.D.C.); *Application of Alfred W. Krogman,* 223 F. 2d 497, 500 (C.C.P.A.).

The design and construction of the Adams battery concededly represented an advancement of the art; but it was attributable to the endeavors of a skilled artisan bringing together the teachings of his trade, not to inventive genius. In 1883—sixty years before the effective date of the Adams patent—United States Patent No. 282,624 was issued to Plymmon S. Hayes covering his chloride-of-silver battery. The Hayes patent teaches of a battery constructed by immersing two electrodes into a quantity of water stored in a glass container. The Adams battery is of identical design; a water-filled jar into which are immersed two electrodes. The only notable difference between the Hayes' and Adams' batteries is that Adams substituted electrodes of cuprous chloride and magnesium for those of silver

chloride and zinc.[5] But surely those mechanical alterations cannot constitute invention, for it was conceded, and the prior art references disclosed, that in making those changes Adams did nothing more than substitute known electro-chemical equivalents.[6]

The interchangeability of cuprous chloride and silver chloride for electrode purposes was never at issue. Indeed, as the commissioner's opinion reflects, in an endeavor to embrace within its patent batteries utilizing silver chloride electrodes respondent "alleg[d] that silver chloride and cuprous chloride were well known electro-chemical equivalents prior to the Adams invention" (App., p. 22).[7] That concession was inescapable, for an 1891 British patent admittedly teaches of the interchangeability of cuprous

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[5] While ordinary tap water serves as the battery fluid in the Adams battery, Hayes employed a 2% solution of sodium chloride, or the same quantity of amonium chloride, and 98% of distilled water. However, respondents have never contended that that slight alteration in the composition of the battery fluid was the result of "inventive genius."

[6] To demonstrate this fact, a pictorial comparison of the Hayes and Adams batteries, detailing the substitutions made and documenting their sources in the prior art, was offered in the court below.

[7] In their brief filed in the court below respondents assert (p. 108): "The record in this case is completely dispositive of the issue that cuprous chloride and silver chloride are full equivalents in the Adams battery system. * * * the claims of the patent in suit are entitled to be construed to include the obvious and well-known equivalent of silver chloride within their bounds."

chloride and silver chloride as electrode materials (the Wensky patent, British Patent No. 49).[8]

The remaining change which Adams effected in the Hayes battery (the substitution of a magnesium rod for one of zinc) was likewise within the teachings of the prior art. Two United States patents explicitly taught the advisability of substituting magnesium electrodes for zinc electrodes in water-activated batteries. A 1928 patent issued to Robert T. Wood (No. 1,696,873) states:

> Magnesium stands near the top of the electrochemical series and because of its high solution potential a much higher voltage should be produced if the zinc of the Leclanché cell is replaced by magnesium.

That teaching was reiterated in the 1937 Jumau patent (No. 2,078,143), wherein it is stated:

> The use of a depolarizer of lead sulphate or lead chloride and of a negative zinc electrode is already known. * * *
>
> The cells, forming the subject of the present invention, comprise the simultaneous use of a positive electrode with a depolarizer having a

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[8] Again, in their trial brief respondents state (p. 105):

"One reference cited by defendant appears to be dispositive of the issue by itself, the British patent No. 49 to Wensky of 1891 (DX–20) in its second and third paragraphs, on page 1 thereof, teaches the interchangeability of cuprous chloride and silver chloride in the Marie Davy type of battery. Although this is a different battery system (R. 186), the equivalency of the two materials in the art is clear."

base of an insoluble lead salt, of a negative magnesium electrode and a neutral salt solution as electrolyte."

Finally, an 1880 British patent (the Skrivanoff patent, No. 4341) teaches of the use of magnesium and cuprous chloride as complementary electrode materials—the identical electrode materials employed by Adams. Although the disclosed Skrivanoff electrolyte includes chromic acid, the fact that the cell can operate in water is uncontroverted (R. 644).

It is true that Adams put together elements not actually combined before and obtained more favorable results, for some purposes, than had prior combinations. But the elements were known; the practicability of substitution was established; and

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*That the prior art teaches of the interchangeability of zinc and magnesium for electrode purposes was also confirmed by respondents in the court below. An article by Mullen and Howard on the *Characteristics of the Silver Chloride-Magnesium Water Activated Battery*, introduced by respondents (Rx-39, p. 541), states:

"Silver chloride, according to the patent literature, was employed extensively in the latter part of the last century as the positive electrode of batteries used for ringing doorbells and lighting gas lamps. * * * Zinc was employed as the negative electrode, because it was the best metal available for the purpose at the time. Magnesium has always been attractive to battery designers because it yields at least 0.5 volt more than zinc, is lighter in weight and has a much more favorable electrochemical equivalent. It is not surprising therefore, that, as soon as it became commercially available, magnesium was used in a number of primary cells in conjunction with a variety of positive electrode materials." Respondent's expert testified that magnesium was discovered in about 1854 and became available before 1900 (R. 167).

it was familiar that different combinations produced various electric charges, some stronger and more reliable than others. Plainly, it is not just hindsight that enables one to say that any mechanic skilled in the art, with the interest or incentive, would be led to try and could readily produce the new combination. While Adams' achievement might be described as a "progressive idea" (*Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Co.*, 340 U.S. 147, 153) or an exercise of "mechanical skill" (*Reckendorfer* v. *Faber*, 92 U.S. 347, 356), that does not suffice. *Ibid.* It is fundamental that a patent monopoly can only be granted as a reward and encouragement for the "exercise of the inventive faculty" (*Densmore* v. *Scofield*, 102 U.S. 375, 378), or "inventive genius" (*Concrete Appliances Co.* v. *Gomery*, 269 U.S. 177, 185; *Mantle Lamp Co.* v. *Aluminum Products Co.*, 301 U.S. 544; *Cuno Engineering Corp.* v. *Automatic Devices Corp.*, 314 U.S. 84, 91). As this Court observed when it last considered the standard of patentability some fifteen years ago (*Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Co.*, 340 U.S. at 152):

> The function of a patent is to add to the sum of useful knowledge. Patents cannot be sustained when, on the contrary, their effect is to subtract from former resources freely available to skilled artisans. A patent for a combination which only unites old elements with no change in their respective functions, such as is presented here, obviously withdraws what already

is known into the field of its monopoly and diminishes the resources available to skillful men. This patentee has added nothing to the total stock of knowledge, but has merely brought together segments of prior art and claims them in congregation as a monopoly.

2. We do not suggest that this Court can given plenary consideration to every case in which the standard of patentability has allegedly been misapplied. We do think, however, that there is an urgent need to exercise a continuing measure of supervision to assure that it is not relaxed by years of unreviewed departures effectively changing, while purporting to repeat, the established rule. See, in this connection, the petition recently filed in *Calmar, Inc.* v. *Cook Chemical Co.*, No. 778, this term.

The government has a strong interest in insuring that the constitutional and statutory standard of patentability is maintained by the Court of Claims. Under 28 U.S.C. 1498 all infringement suits against the United States must be brought in the Court of Claims and, at the present time, 93 such actions are pending in that court with potential liability estimated in excess of $413 million. More important, the government is charged with protecting the public interest in a competitive economy, and that includes guarding against the restraints upon competition occasioned by the indiscriminate grant of unwarranted patents.

The Constitution (Art. I, § 8, cl. 8) authorizes the grant of a patent monopoly only for original creative

contributions, and only for limited times.[10] Both the requirement of inventiveness and the limited term are integral parts of the federal patent policy. *Sears, Roebuck & Co.* v. *Stiffel Co.*, 376 U.S. 225, 229. Our patent jurisprudence is intended, as was its historical ancestor (the Statute of Monopolies, 21 Jac. I, c. 3 (1623)), to curb, not to expand, monopolies. *Ibid.* Thus, the authority to reward inventors for limited terms has long been recognized as an exception to the general prohibition against monopolies (*Pennock* v. *Dialogue*, 2 Pet. 1, 17–21; cf. *United States* v. *Singer Mfg. Co.*, 374 U.S. 174, 199 (Mr. Justice White concurring)); and the exception is to be carefully confined lest it undermine the premise which lies at the base of antitrust laws—"that the unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress" (*Northern Pac. R. Co.* v. *United States*, 356 U.S. 1, 4). As this Court recognized more than eighty years ago in striking down a patent for want of invention, "an indiscriminate creation of exclusive privileges" impairs technological progress and obstructs the economy. *Atlantic Works* v. *Brady*, 107 U.S. 192, 199–200.

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[10] Hence, Congress has provided that a patent may be granted for a "new and useful" product for 17 years, and for a "new, original and ornamental" design for up to 14 years. 35 U.S.C. 101, 102, 154, 171, 173. During the appropriate term, no one may make, use, or sell such patented product in the United States without the authority of the patentee. 35 U.S.C. 271.

3. We note that this Court has recently granted certiorari in the case of *Graham* v. *John Deere Co.*, No. 580, this Term, a case which also involve the standard of patentability.[11] In *Graham* the Court will have before it the holding of the Eighth Circuit (in conflict with a holding of the Fifth Circuit relating to the same patent) that, in order to be patentable, a combination of old elements in a new way cannot be obvious and must bring forth a significantly different result than that disclosed by the prior art. The Court also has before it the petition in *Calmar, Inc.* v. *Cook Chemical Co.*, No. 778, this Term, likewise involving a patent on a combination, which undertakes to show that there has been a general debasement of the standard of patentability in the past decade. The government contemplates that it will shortly file a petition in the case of *Application of Andrew John Manson*, in which the Court of Customs and Patent Appeals recently held that a patent may be obtained on a process for the production of a chemical compound notwithstanding the fact that the applicant is unable to demonstrate any utility for the compound.

These cases and the present case afford the Court an opportunity to consider pressing problems relating

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[11] This is the first such case in which the writ has been granted since 1950. From the time of the expansion of this Court's certiorari jurisdiction in 1925 until 1949, the Court reviewed the application of the standard of patentability in no less than one hundred cases.

to the administration of the patent laws in a variety of contexts and in broad perspective. A congressional study observed several years ago that "the standard of invention [is] clouded in uncertainty" and "the various circuits are unable even to agree as to the legislative intent expressed in Section 103. One view holds that the standard of patentability was unchanged by the enactment of Section 103, while the other position is that it was the intent of Congress to relax the rigid test of patentability laid down by the Supreme Court." [12] The need for dissipation of the prevailing uncertainty and for greater uniformity in the application of the governing standards counsels review by this Court.

CONCLUSION

It is respectfully submitted that this petition for a writ of certiorari should be granted.

ARCHIBALD COX,
Solicitor General.
JOHN W. DOUGLAS,
Assistant Attorney General.
SHERMAN L. COHN,
EDWARD BERLIN,
Attorneys.

FEBRUARY 1965.

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[12] See *An Analysis of Patent Litigation Statistics*, Staff Report of the Senate Subcommittee on Patents, Trademarks and Copyrights of the Committee on the Judiciary, 86th Cong., 2d Sess., (committee print), p. 1.

APPENDIX

In the United States Court of Claims

No. 163–60

(Decided April 17, 1964)

BERT N. ADAMS, EMMA ADAMS, GEORGE HALLINGBY (individually and as Executor of the Estate of Olaf Hallingby, deceased), JANE MAESEL, IRIS PETRY, LEWIS M. SCHOTT, MARY ELLEN HALLINGBY SEIMERS, AND HELEN LOUISE SUTCLIFFE (individually and as Executrix of the Estate of Ernest M. Sutcliffe, deceased) v. THE UNITED STATES

John A. Reilly for plaintiffs. *Richard A. Huettner*, *William J. Ungvarsky* and *Kenyon & Kenyon* were on the brief.

Paul F. Arseneau, with whom was *Assistant Attorney General John W. Douglas*, for defendant.

Before JONES, *Chief Judge*, WHITAKER, LARAMORE, DURFEE, and DAVIS, *Judges*.

OPINION

PER CURIAM: This case was referred to Trial Commissioner Donald E. Lane, pursuant to Rule 45(a),[1] to make findings of fact and recommendation for conclusions of law. The commissioner has done so in a report filed January 28, 1963. Both plaintiffs and defendant have filed exceptions to the commissioner's report and briefs in support thereof.

[1] Now Rule 57(a).

The case was submitted to the court, on oral argument of counsel, on the issue of liability. The court agrees with, and adopts, the findings and recommendation of the commissioner, with a slight modification,[2] as the basis for its judgment in the case. Plaintiffs' patent is valid and the invention covered therein was used by defendant without authorization. Plaintiffs are entitled to recover reasonable and entire compensation for such unauthorized use, and judgment will be entered to that effect. The extent of liability will be determined in further proceedings before a trial commissioner, pursuant to Rule 47(c)(2).

OPINION OF COMMISSIONER

This is a claim for compensation under 28 U.S.C. § 1498, for unlicensed use of a patented invention, for compensation under 28 U.S.C. § 1491 for breach of implied contract, and for compensation under the Mutual Security Acts of 1951 and 1954, 22 U.S.C. §§ 1668 (repealed in 1954) and 1758, respectively.

The subject matter concerns an electric battery disclosed in United States Letters Patent 2,322,210, issued June 22, 1943, to Bert N. Adams, one of the petitioners herein. The patent disclosure, patent claims in suit, and the accused batteries used by defendant are described in the accompanying findings of fact. The several issues of law involved are discussed in the following comments.

One of the important issues raised by the pleadings is whether the fact that the individual constituents of the Adams battery have been long known in the art and have

[2] Since we hold that the Government has used plaintiffs' valid patent without authorization, we find it unnecessary to decide the issue of breach of an alleged implied contract to compensate plaintiffs for use of the invention because the amount of recovery would not be changed by a decision on that issue. The amount of recovery under plaintiffs' contract claim would not be greater than that under the patent infringement claim: under plaintiffs' theory, the period for which contract recovery may be had is from 6 years prior to the filing of the present suit to date (Plaintiffs' Reply Brief, page 146); and the measure of recovery under the contract theory would be a reasonable royalty as compensation, *McKeever* v. *United States*, 14 Ct. Cl. 396, 425–426 (1878), which is substantially the same as the reasonable and entire compensation in infringement actions under 28 U.S.C. § 1498.

In this regard it is of interest to note our recent decision in *Padbloc Company* v. *United States*, Ct. Cl. No. 523–57, decided April 5, 1963, in which we found an implied contract and so it was unnecessary to decide the patent infringement issue.

been used in various combinations in numerous batteries developed in the past, negates the essential element of novelty required in a valid patent, even though the specific combination used by Adams was never before disclosed and produced unusual and unexpected results. The defendant has cited some 24 prior disclosures against the Adams patent. These citations, some of which date back as far as 1880, show that each of the elements of the Adams battery was well known in the battery-making art at least 50 years before the Adams application for letters patent. Adams, after all these many disclosures, put together the specific *combination* of elements that resulted in a lightweight cell which could be exposed to extreme temperature conditions and which, upon activation by water, produced a constant electric potential. The volume of the prior art points to the novelty of the Adams invention. It has been frequently held that voluminous prior art indicates that none of the prior art is in point or indicates that prior attempts to solve the problem have not met with success. In the case of *Reynolds* v. *Whitin Mach. Works*, 167 F. 2d 78 (4th Cir., 1948, 76 U.S.P.Q. 551, it was held, at pages 83 and 84:

> Defendant has cited 21 patents as basis for its contention that complainants' invention is lacking in novelty; and this in itself is evidence of the weakness of the contention. Such a citation of so many prior patents almost always means either that none of them is in point and that the patentee has brought together for the purpose of his invention devices to be found in prior patents of different character, or that there have been prior attempts to solve the problem with which he was confronted which have not met with success.

The fact that it was known to one skilled in the battery art that the various individual components of the Adams battery could be used in designing batteries, does not make the Adams invention obvious and unpatentable within the meaning of 35 U.S.C. § 103. The pertinent portion of this section reads as follows:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would

> have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

The evidence presented during the trial shows that although the necessary materials and techniques were available to the battery experts for over 50 years, no one put them together, or recognized that the *combination* would work, or yield new and unexpected results. Further, the evidence shows that the invention constituted an important advance in the art and has had many successful uses. The courts have recognized that obviousness is negated where the patent teaches a solution which has long eluded the researchers in the art, even though all the elements required to provide the solution have been readily available. In *Goodyear Co.* v. *Ray-O-Vac Co.*, 321 U.S. 275, 60 U.S.P.Q. 386 (1944), in supporting the validity of a patent relating to a leakproof dry cell for a flashlight battery, Mr. Justice Roberts, writing for the Supreme Court, said, at page 279:

> Viewed after the event, the means Anthony adopted seem simple and such as should have been obvious to those who worked in the field, but this is not enough to negative invention. During a period of half a century, in which the use of flashlight batteries increased enormously, and the manufacturers of flashlight cells were conscious of the defects in them, no one devised a method of curing such defects. Once the method was discovered it commended itself to the public as evidenced by marked commercial success. These factors were entitled to weight in determining whether the improvement amounted to invention and should, in a close case, tip the scales in favor of patentability. Accepting, as we do, the findings below, we hold the patent valid and infringed.

See also *Peerless Equipment Co.*, v. *W. H. Miner, Inc.*, 93 F. 2d 98 (7th Cir., 1937), 35 U.S.P.Q. 396, and *Remington Rand Business Service, Inc.* v. *Acme Card System Co.*, 71 F. 2d 628 (4th Cir., 1934), 22 U.S.P.Q. 1. While the use of any of the individual components of the Adams battery cell may have been obvious at the time of the invention, the invention *as a whole* was not obvious, at the time the invention was made, to a person having ordinary skill in the art.

The fact that the Adams patent discloses only a single

embodiment of his invention does not necessarily restrict the claims of his patent to that particular embodiment. The Adams patent discloses that the cuprous chloride electrode is made by heating cuprous chloride until it melts and then forming it into a cylindrical electrode by the use of a mold. The defendant alleges that since the cuprous chloride electrode is referred to in the specification and the claims as *fused*, the claims must be restricted to the type of electrode described in the specification of the patent. The facts show that the term *fused* may refer to unifying by means other than by the particular method described in the specification of the Adams patent. The description of an invention in the specification is required by 35 U.S.C. § 112, which reads in part as follows:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

It is evident that this section does not require an inventor to disclose every possible way in which his invention may be used, nor does it limit the claims of the patent to the particular mode which the inventor considers best at the time of filing his application for patent. In the case of *Smith* v. *Snow*, 294 U.S. 1, 24 U.S.P.Q. 26 (1935), Mr. Justice Stone, in discussing this point, said, at page *11:*

> We may take it that, as the statute requires, the specifications just detailed show a way of using the inventor's method, and that he conceived that particular way described was the best one. But he is not confined to that particular mode of use since the claims of the patent, not its specifications, measure the invention.

It is clear that the Adams patent claims are not limited to covering only electrodes made in the specific manner described in the specification.

The fact that in some instances silver chloride may be equivalent to cuprous chloride does not entitle the plaintiffs to extend the coverage of the Adams patent claims to cover

silver chloride electrodes as well as cuprous chloride electrodes. Neither the specification nor the claims of the Adams patent mention that silver chloride may be used as the electronegative electrode. However, plaintiffs allege that silver chloride and cuprous chloride were well known electrochemical equivalents prior to the Adams invention, and that cells made with silver chloride electrodes also infringe the claims of the patent. The doctrine of equivalents is based on the theory that one should not be able to avoid infringement of a patent merely by substituting an equivalent for one of the elements recited in a claim. The doctrine is invoked when a person reasonably skilled in the art would have known of the interchangeability of an ingredient not disclosed in the patent with one that was. *Graver Mfg. Co.* v. *Linde Co.*, 339 U.S. 605, 85 U.S.P.Q. 328 (1950). It cannot be said that one reasonably skilled in the battery art would have known of the interchangeability of cuprous chloride and silver chloride in the Adams battery. The battery disclosed in the Adams patent is made up of *particular* components which unexpectedly produced a battery having unique characteristics. The Adams patent specification is completely silent as to any other components which would work equally well in his battery. The public was left to mere speculation or experimentation to determine whether in all the known battery components there was any other component which could be used in place of the particular components which Adams disclosed. In considering equivalency, the context of the patent, the prior art, and the particular circumstances of the case must also be weighed. In the present case, the validity of the Adams patent is sustained on the ground that, in a crowded art, Adams selected *specific* components from the group of known battery components and found that the *combination* of these specific components resulted in a workable battery having unique and unexpected characteristics. The unexpectedness of the Adams invention is evidenced by the fact that, even today, the theory upon which the Adams battery operates is unknown. To allow the plaintiffs to expand the Adams patent claims to include other allegedly equivalent components, which were also in the known group of battery components at the time of the Adams invention, would be contrary to the finding of val-

idity. It was stated in *Union Carbide & Carbon Corp.* v. *Grover Tank & Mfg. Co.*, 196 F. 2d 103, 112, 93 U.S.P.Q. 137 (7th Cir., 1952), that:

> In our opinion, the application of the doctrine of equivalency in this case is to ignore the teachings of the patent, the representation upon which the claims in suit were allowed and, more pointedly perhaps, the representations by which their validity has been sustained in the courts. While the difference between plaintiff's composition and those accused may not be great, it is that difference which distinguished plaintiff's composition from the prior art and which enabled it to sustain the validity of its grant. It is now estopped from claiming otherwise.

Claims 1 and 10 of the Adams patent have been specifically relied upon by the plaintiffs. These two patent claims, set forth in finding 12, each define a combination including a magnesium electropositive electrode and a fused cuprous chloride electronegative electrode. Claim 10 also recites the presence of a carbon catalytic agent in the electronegative electrode. The accused Eagle-Picher and Ray-O-Vac battery units identified in findings 25 and 26 as trial exhibits 7, 8, and 9, each include a magnesium electropositive electrode and a fused cuprous chloride electronegative electrode as set forth in more detail in finding 34. These batteries infringe claim 1 of the Adams patent. The accused Burgess battery unit identified in findings 28 and 37 as trial exhibit 18 contains a silver chloride electronegative electrode and does not infringe the claims of the Adams patent.

Summarizing, it is found that plaintiffs are the rightful owners of the Adams patent, that the patent is valid, that the invention claimed therein has been used by defendant without license of the owners, that the plaintiffs are entitled to recover compensation for such use, and that the extent of liability should be determined in further proceedings pursuant to Rule 47(c)(2).

FINDINGS OF FACT

1. This is a suit involving a patent claim and a contract claim brought under the provisions of 28 U.S.C. §§ 1491 and 1498 and 22 U.S.C. §§ 1668 (repealed) and 1758. The parties

have stipulated that this court has jurisdiction over all of the parties involved and over the issues raised by the petition and answer.

2. The patent claim is for reasonable and entire compensation for unauthorized and infringing use or manufacture by or for defendant, and for the unauthorized and infringing use within the United States in furtherance of the purposes of the Mutual Security Acts of 1951 and 1954 of United States Letters Patent No. 2,322,210 entitled "Battery" which issued June 22, 1943, on an application for patent filed by Bert N. Adams, a plaintiff herein. This patent will be referred to hereinafter as the Adams patent.

3. The breach of contract claim is for reasonable and entire compensation for defendant's breach of an express or implied contract existing between defendant and plaintiffs relating to compensation for use or manufacture by or for defendant of batteries made in accordance with disclosures made to defendant by plaintiff Bert N. Adams.

4. At pretrial conference, the parties stipulated that upon proof of the manufacture by or for, or the use by or for, the defendant, of one or more articles alleged in the petition, or otherwise alleged on the record, to infringe the Adams patent, the issues of patent validity and of infringement of the patent by the defendant would be first determined upon full proofs, findings of fact, and argument of counsel. The parties further agreed that the accounting issue, including evidence as to the number of articles procured and/or the value of the patented invention, or the extent of the liability, if any, of the defendant, and the amount of reasonable and entire compensation, if any, due to plaintiffs on account thereof, would be deferred until after the entry of the order of the court on the issues of patent validity and/or patent infringement.

5. The ownership of the Adams patent, the application therefor, and the claims against the defendant involved in this suit are as follows:

a. The application for patent was filed December 18, 1941, and from that date through January 14, 1942, ownership of the application and any claims arising during this period was: 10 percent in Olaf Hallingby (owned until July 16,

1959, by his heirs, Mary Seimers, George Hallingby, Iris Petry, and Jane Maesel), and 90 percent in Bert N. Adams.

b. From January 15, 1942, through January 16, 1942, ownership of the application and the claims arising during this period was: 10 percent in Olaf Hallingby (owned until July 16, 1959, by his heirs, Mary Seimers, George Hallingby, Iris Petry, and Jane Maesel); 45 percent in Bert N. Adams, and 45 percent in Emma Adams.

c. From January 17, 1942, through September 14, 1942, ownership of the application and the patent (which issued on June 22, 1942) and the claims arising during this period was: 10 percent in Olaf Hallingby (owned until July 16, 1959, by his heirs, Mary Seimers, George Hallingby, Iris Petry and Jane Maesel); 45 percent in Emma Adams; 1.35 percent in Ernest Sutcliffe (owned by his heir, Helen Sutcliffe, until July 16, 1959), and 43.65 percent in Bert N. Adams.

d. From September 14, 1942, through April 14, 1959, ownership of the application and the patent and the claims arising during this period was: 10 percent in Olaf Hallingby (owned until July 16, 1959, by his heirs, Mary Seimers, George Hallingby, Iris Petry, and Jane Maesel); 45 percent in Emma Adams; 0.9 percent in Ernest Sutcliffe (owned by his heir, Helen Sutcliffe, until July 16, 1959), and 44.1 percent in Bert N. Adams.

e. From April 15, 1959, through July 15, 1959, ownership of the patent and the claims arising during this period was: 10 percent in Olaf Hallingby (owned until July 16, 1959, by his heirs, Mary Seimers, George Hallingby, Iris Petry, and Jane Maesel); 0.9 percent in Ernest Sutcliffe (owned until July 16, 1959, by his heir, Helen Sutcliffe), and 89.1 percent in Bert N. Adams.

f. From July 16, 1959, through August 30, 1959, ownership of the patent and the claims arising during this period was 100 percent in Bert N. Adams.

g. After August 31, 1959, ownership of the patent (which expired June 21, 1960) and the claims arising during this period was 100 percent in plaintiff Lewis M. Schott.

6. Adams first became interested in batteries in the summer of 1939. While employed at the New York World's Fair, he studied various battery theories at home, and con-

ducted experiments using various types of electrodes and electrolytes in batteries. Finally, Adams discovered that when cuprous chloride was used in combination with magnesium and water, the result was an operable battery.

7. Adams continued experimenting, and in 1940, after accidentally dropping cigarette ashes into the cuprous chloride which he was making into a cathode, he discovered that the addition of carbon improved the battery by increasing the current and providing a substantially level (constant) potential. Subsequent experiments taught Adams that a small addition of magnesium chloride to the electrolyte would increase the speed of activation of the battery and that the addition of a small amount of magnesium sulphate helped to clean the electrodes.

8. On December 18, 1941, Adams filed an application for patent in the United States Patent Office. This application resulted in the issuance of the Adams patent on June 22, 1943.

9. The Adams patent disclosed a battery comprised of a magnesium electropositive electrode (anode), a cuprous chloride electronegative electrode (cathode), and a water electrolyte. The distinctive characteristics of this battery are that it is light in weight, it uses ordinary water as an electrolyte, it may be manufactured and distributed in a dry condition and may be rendered serviceable by merely filling the container with ordinary water, it may be operated under extremely cold conditions, and, upon complete activation, it produces a linear (constant) potential which continues until the battery is substantially exhausted.

10. The Adams patent contains several illustrative drawings which are reproduced below.

June 22, 1943. B. N. ADAMS 2,322,210

BATTERY

Filed Dec. 18, 1941

Fig. 1.

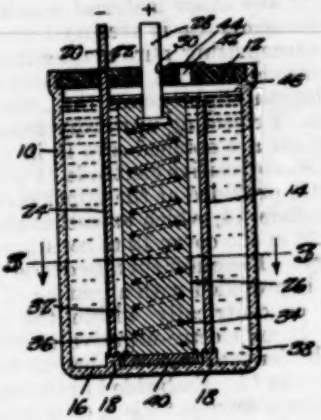


Fig. 2.

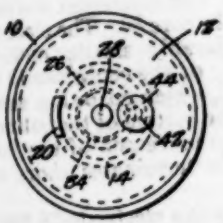
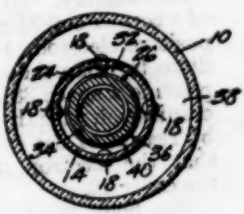


Fig. 3.



11. The specification of the Adams patent describes the drawings in part as follows:

> Figure 1 is a sectional view of a battery in accordance with my invention;
>
> Figure 2 is a top plan view; and
>
> Figure 3 is a sectional view taken along the line 3—3 of Figure 1.
>
> In the embodiment selected for illustration, I make use of a container 10 provided with a closure or cover 12 of insulative material. The container 10 may comprise glass or any other material which is waterproof. Inside the container 10 is arranged an electro-positive electrode 14 comprising pure magnesium. The electro-positive electrode 14 is in the form of an open ended tube of a length slightly less than the height of the container 10. Projecting upwardly from the bottom 16 of the container are notched ears 18 in which the lower end of the electro-positive electrode 14 is supported. An extension 20 is provided at the upper end of the electro-positive electrode 14, which extension projects through an opening 22 in the cover 12 to constitute one terminal of the battery. The outer surface of the electro-positive electrode 14 is provided with a coating of tar 24.
>
> Arranged concentrically within the electro-positive electrode 14 is an electro-negative electrode 26 in the form of a cylinder coextensive in length with the electro-positive electrode 14. Embedded in the upper end of the electro-negative electrode 26 is a copper terminal 28 extending through an opening 30 in the cover 12. The electronegative electrode 26 is of uniform diameter less than the inside diameter of the electropositive electrode 14 so as to provide a space 32 for the liquid contained in the battery. To the terminal 28 is connected one end of a copper coil 34 embedded in the core 36. The electro-positive electrode 14 is of considerably smaller outside diameter than the inside diameter of the container 10 to provide a space 38 for the liquid, which space has communication with the space 32 at the bottom of the battery by reason of the ears 18 and also by reason of the fact that the electropositive electrode terminates short of the cover 12.
>
> The body 36 of the electronegative electrode 26 comprises fused cuprous chloride (CuCL). In manufacturing the body 36, the coil 34 and the terminal 28 are arranged in a mold and the latter supplied with the requisite amount of cuprous chloride poured from a heated crucible. A piece of wood carbon is placed on the top of the cuprous chloride in the crucible and the

latter is heated to a temperature ranging between 400° and 500° centigrade at which the cuprous chloride may be poured. The wood carbon constitutes a catalytic agent which renders the electronegative electrode 26 successful for the purpose intended, the exact chemical action being unknown to me.

After the electronegative electrode 36 is removed from the crucible, it is cooled and dipped in a 66° Baumé solution of sulphuric acid. While still dripping wet, the electrode 26 is covered with aluminium powder to prevent oxidation thereof. The electrode 26 is now ready for use.

The lower end of the electrode 26 is rested on a wood block 40 on the bottom 16. Both terminals 20 and 28 are firmly anchored in the cover 12 so that all the parts are maintained in fixed relationship when assembled with the container.

12. Although all 11 claims of the Adams patent are in suit, plaintiffs have relied specifically on claims 1 and 10. The elements of these two claims are as follows:

Patent Claim 1

A battery comprising
a liquid container,
a magnesium electropositive electrode
inside the container
and having an exterior terminal,
and a terminal connected with said electronegative
and a terminal connected with said electronegative electrode.

Patent Claim 10

In a battery, the combination of
a magnesium electropositive electrode, and
an electronegative electrode comprising cuprous chloride fused with a carbon catalytic agent.

VALIDITY ISSUE

13. Defendant urges that the patent is invalid on the grounds that the invention was fully anticipated by the prior art and is hence invalid under 35 U.S.C. § § 101 and 102, and that the invention was obvious to those skilled in the art at the time that it was made, and is hence invalid under 35 U.S.C. § 103.

14. Defendant has cited 24 prior patents and publications, defendant's exhibits 1–24, identified as follows:

Elementary Treatise on Electric Batteries, Niaudet, 1880, pages ix, 200–209;
Hayes patent 282,634, 1883;
Galvanic Batteries, Bottone, 1902, pages 172–177;
Primary Batteries, Carhart, 1891, pages 62–65;
Barrett patent 405,196, 1889;
Hard patent 457,116, 1891;
Hathaway patent 454,598, 1891;
Van Tenac patent 184,932, 1876;
Fink patent 434,593, 1890;
Pearson patent 512,055, 1894;
Practical Primary Cells, Codd, 1929, pages 1–3, 43, 44, 78–81, 110, 117;
Wood patent 1,696,873, 1928;
Ruben patent 1,920,151, 1933;
Jumau patent 2,078,143, 1937;
Manual of Chemistry, Simon, 1905, page 216;
Essentials of General Chemistry, Hopkins, 1946, pages 371, 372, period table;
Ferrabino British patent 301,923, 1928;
Thurnauer, et al. patent 552,211, 1895;
Skrivanoff British patent 4,341 of 1880;
Wensky British patent 49 of 1891;
Copper-Zinc and Copper-Tin Alloys, Laurie, 1888, pages 104–116;
Parkhurst patent 269,454, 1882;
Heil patent 653,770, 1900;
Harrison patent 1,522,121, 1925.

15. Nine of these publications disclose batteries utilizing silver chloride; none of these items disclose the use of magnesium. Four of these publications disclose batteries with magnesium as a component; none of these disclose the use of silver or cuprous chloride. Three of these publications disclose the use of cuprous chloride as a single component; none of these disclose its use in conjunction with magnesium. Two of these publications disclose the use of neither magnesium, nor cuprous chloride, nor silver chloride. A total of 18 of defendant's 24 cited publications disclose either none of the components of the Adams system or at most one single component of the system; none of these 18 items disclose the combination of even two of the components. Only three of defendant's anticipatory references disclose more than one component of the Adams system.

16. The Codd textbook (on page 22) mentions magnesium but only for use in a cell in which the other electrode is copper and the electrolyte is dilute sulfuric acid. On page 44, in discussing another battery entirely, Codd discusses silver chloride as an electrode. There is no suggestion in Codd that the materials could be combined in a battery.

17. The Skrivanoff foreign patent discloses a battery having an electrode of magnesium, an electrode comprising cuprous chloride *mixed together with* some seven other substances, and a strong electrolyte. The evidence establishes that the disclosure of this very old patent is inoperative.

18. The Niaudet treatise (1880) discloses a battery having an electrode of silver chloride, an electrode of zinc, and plain water as an electrolyte. This disclosure contains no suggestion that magnesium might be substituted for zinc in this battery.

19. The Harrison patent, cited by defendant to show the state of the art, discloses a battery in which the electrodes are immersed in sea water on opposite sides of a ship. One electrode is magnesium and the other is copper. The electrolyte is the sea water. The patent explains that because of exposure to sea water, the potential characteristics and current yield for a copper electrode having a given area will gradually improve.

20. The Simon article and the Hopkins article, which were not cited by the defendant as anticipatory references, show that magnesium is an alkaline earth metal. The Jumau patent discloses that the electrolyte in a lead chloride-magnesium battery may be a dilute solution of an alkaline earth salt, such as a sulphate or a chloride.

21. Summarizing findings 14 through 20, the cited publications and patents do not anticipate the invention defined in the several claims of the Adams patent.

22. Each of the elements of the several claims of the Adams patent was individually old in the battery-making art at the time of the filing of the Adams application for the patent here in suit. While there is evidence of a definite need for a battery having the characteristics of the Adams battery, those skilled in the art failed to develop one for a period of over 50 years, during which time all of the necessary ingredients were available. There is no evidence that anyone

had ever before suggested the specific *combination* of elements which make up the Adams battery nor that anyone had ever before suggested that such a battery would have a substantially constant potential, could be operated under extreme temperatures, and could be operated with ordinary or distilled water.

23. The Adams invention was the first practical, water-activated, constant potential battery capable of operation at low temperatures. When Adams first disclosed his invention to others skilled in the art, he did not know its theory of operation and it was received with considerable skepticism. However, this development was subsequently recognized throughout the industry as an extremely important step in rounding out the sources of battery-furnished power, and filling important, long-standing needs of both civilian and military natures.

24. Summarizing findings 22 and 23, the Adams invention was not, as a whole, obvious, at the time the invention was made, to a person having ordinary skill in the battery art.

INFRINGEMENT ISSUES

25. Plaintiffs contend that batteries embodying the invention and infringing the claims of the Adams patent were used or manufactured by or for defendant without authorization or license of plaintiffs. The parties have stipulated that the batteries identified as trial exhibits 7, 8, and 9 were procured by and delivered to the defendant within the 6-year period preceding the filing of the petition. The parties further stipulated that articles made as described in trial exhibit 1 were procured by and delivered to the defendant within the 6-year period preceding the filing of the petition.

26. Trial exhibit 7 is an Eagle-Picher battery unit designated BA–259/AM. Trial exhibit 8 is a Ray-O-Vac battery unit designated BA–292/AM. Trial exhibit 9 is a Ray-O-Vac battery unit designated BA–253/U.

27. Trial exhibit 1 includes a letter from The Electric Storage Battery Company, stating that they have supplied to the defendant batteries having cuprous chloride plates made in accordance with United States Letters Patent Nos. 2,640,090, 2,640,091, and 2,667,527. These three patents issued on applications filed after the Adams patent issued.

Trial exhibit 1 also includes a letter from Burgess Battery Company stating that the batteries produced by Burgess had a plate made of a paste of cuprous chloride, plastic binder, and graphite. Trial exhibit 1 also includes a letter from The Eagle-Picher Company stating that all the magnesium cuprous chloride batteries which have been produced by Eagle-Picher have been made in accordance with the process outlined in United States Letters Patent No. 2,636,060 and/or Reissue No. 23,883. These two patents issued to the defendant, as represented by the Secretary of the Army, on applications filed after the Adams patent issued. Trial exhibit 1 also includes a letter from Ray-O-Vac Company stating that all of the batteries furnished to the defendant by Ray-O-Vac have had positive plates made in accordance with the process outlined in Patent No. 2,636,060 or Reissue No. 23,883, noted above, by a process involving subjecting a mixture containing cuprous chloride to pressure in a tableting machine to form pellets.

28. Trial exhibit 18, a Burgess battery unit designated X10183, is a water-activated, magnesium and silver chloride battery introduced by defendant as illustrative of procurement of such devices during the 6-year period next preceding the filing of the petition.

29. Patents Nos. 2,640,090, 2,640,091, and 2,667,527, which are referred to in finding 27, teach a water-activated, magnesium and cuprous chloride battery having a pasted grid type cuprous chloride plate made by mixing cuprous chloride with silver chloride and water, and pasting the mixture on a copper wire screen.

30. Patent No. 2,636,060, referred to in finding 27, teaches a process for making cuprous chloride electrodes for water-activated, magnesium, cuprous chloride batteries. The cuprous chloride electrodes are made by making a pasty mixture of cuprous chloride and water and pasting the mixture on wire screens. Patent Reissue No. 23,883, referred to in finding 27, teaches a process for making cuprous chloride electrodes for water-activated, magnesium, cuprous chloride batteries. The cuprous chloride electrodes are made by making a paste of cuprous chloride, a highly polymeric substance and an organic solvent, and pasting the mixture on wire screens.

31. Cuprous chloride is available commercially as a powder. To function as an electrode, the powder must be formed by some means into electrode shape. There are several methods of forming cuprous chloride into electrode shape. One method, which is suggested in the Adams patent, is to place the cuprous chloride in a crucible and heat the crucible until the cuprous chloride is pourable. Then the cuprous chloride is poured into a mold where it is allowed to solidify. This "candlestick" method was known prior to 1880. Another method is to add water to cuprous chloride to form a pourable slurry, which, upon drying, hardens into a unified mass. Still another method is to add toluene to cuprous chloride to form a pourable slurry which, upon drying, hardens into a unified mass.

32. Defendant alleges that by the use of the term *fused* cuprous chloride in the claims the Adams patent is limited to batteries using cuprous chloride electrodes made by the *heat* method. The method of forming the cathode makes no substantial difference in the electrochemical properties of cuprous chloride, whether the method be liquidification by heat, water, or organic material, such as benzene or toluene. There was considerable testimony at the trial both directly and indirectly relating to the term *fused*. Viewing this testimony as a whole, it appears that the term *fused* is used by some people as meaning unified only by heat. This limitation is by no means universally accepted and other people use the term as meaning unified by any one of a number of methods. One of the definitions given for *fuse* in *Webster's New International Dictionary* (1934 Edition), page 1022, reads: "To unite or blend, as if melted together." The term *fused* as used in the claims of the Adams patent is found to encompass unification or uniting by various methods and is not limited to unification or uniting by heat.

33. Each of Patent Nos. 2,640,090, 2,640,091, 2,667,527, 2,636,060, and Reissue No. 23,883 teaches a unified cuprous chloride electrode which is *fused* within the meaning of the term as used in the Adams patent and claims.

34. Each of trial exhibits 7, 8, and 9 is a pile-type battery. They each have bibulous material which acts as a liquid container, a magnesium electropositive electrode inside the container having an exterior terminal, a fused cuprous chlo-

ride electronegative electrode, and a terminal connected with said electronegative electrode.

35. The evidence is inconclusive and insufficient to determine whether there is carbon in the electronegative electrodes of trial exhibits 7, 8, and 9, as required by the recital of Adams claim 10. However, since each of these exhibits contains each of the elements of claim 1, it is unnecessary to pass upon this question.

36. The cuprous chloride plates manufactured by The Electric Storage Battery Company, Burgess Battery Company, The Eagle-Picher Company, and Ray-O-Vac Company, as described in trial exhibit 1, are *fused* within the meaning of the term as used in the Adams claims.

37. Trial exhibit 18 is a Burgess battery, which includes a liquid container, a magnesium electropositive electrode inside the container having an exterior terminal, a fused silver chloride electronegative electrode, and a terminal connected with said electronegative electrode. It does not have a cuprous chloride electrode.

38. Summarizing findings 25 through 37, claim 1 of the Adams patent has been infringed by trial exhibits 7, 8, and 9. Further, the cuprous chloride plates manufactured by The Electric Storage Battery Company, Burgess Battery Company, The Eagle-Picher Company, and Ray-O-Vac Company, as described in trial exhibit 1, would infringe claims in the Adams patent if used in a battery otherwise covered by the Adams claims. Trial exhibit 18 does not infringe claims of the Adams patent.

CONTRACT ISSUE

39. The plaintiffs allege that defendant, through its National Inventors Council, made a general offer of a unilateral contract for acceptance by any member of the public by submission of a useful suggestion, with use by the defendant as a condition precedent to liability of defendant. Further, the plaintiffs allege that Adams accepted the offer by sending disclosures of his invention to the defendant, and that the condition precedent to defendant's liability has been fulfilled by defendant's use of the invention.

40. It is found that on January 7, 1942, Adams disclosed his invention to the National Inventors Council; that on

January 10, 1942, Adams disclosed his invention to The Chief Signal Officer of the U.S. Army, and that on January 8, 1942, Adams disclosed his invention to the Navy Department. The National Inventors Council replied, asking Adams for more information, which Adams then supplied. Subsequently, Adams informed the National Inventors Council that he was about to receive a patent on the battery, and through the Council he was able to obtain a priority for purchasing magnesium. Both the Signal Corps and the Navy showed immediate interest in the disclosure, and Adams made trips to both Washington, D.C., and Fort Monmouth, New Jersey, where he turned over samples of his battery and made a complete disclosure of his invention to various representatives of the two branches. Subsequently, Adams was in further contact with the personnel at Fort Monmouth and delivered or sent additional information and samples for testing to Fort Monmouth at no expense to the Government. Both the Navy and the Signal Corps finally concluded that the cell offered great promise.

41. The National Inventors Council issued two documents which were available to Adams. The first document was Information Bulletin No. 1–Revised, dated March 1941, and contained, *inter alia*, the following statements:

> The submission to the National Inventors Council, under the provisions contained herein, of any description, drawing or other data pertaining to an invention is solely for the purpose of determining its military or naval value. Its acceptance by the Council does not legally obligate the United States Government or act as an estoppel under the patent statutes.
>
> * * * * *
>
> The Council has no authority to consider the question of compensation for the use of a suggestion or invention by any Government Department or agency. Should an invention be utilized, the matter of compensation will be referred to the Executive Department of the Government making use of the product embodying the invention. Final settlement for the acquirement of rights can then be arranged between the inventor and the appropriate official of the Department making the purchase.
>
> The amount of compensation can be considered only after tender of the suggestion or invention, and its adoption by an executive branch of the Government.

The creation of the Council does not in any way affect the existing laws or practices of the Government Departments as to compensation.

The second document was Information Bulletin No. 2—Revised 1942, and contained, *inter alia*, the following statement:

* * * In such event, the appropriate departments of the Army and Navy then deal directly with the inventor in making the necessary arrangements for the use of the invention. The Council itself does not consider the question of compensation or contracts between inventors and the Army or Navy. The negotiation of such contracts is conducted by the appropriate Military and Naval authorities.

CONCLUSION OF LAW

Upon the foregoing findings of fact, which are made a part of the judgment herein, the court concludes as a matter of law that United States Letters Patent 2,322,-210 is valid; that the invention covered by said patent was used by defendant without authorization of the patent owners, and that plaintiffs are entitled to recover reasonable and entire compensation for such unauthorized use, and judgment will be entered to that effect. The extent of liability will be determined in further proceedings before a trial commissioner, pursuant to Rule 47(c)(2).

No. 163-60

(Decided October 16, 1964)

BERT N. ADAMS, EMMA ADAMS, GEORGE HALLINGBY (INDIVIDUALLY AND AS EXECUTOR OF THE ESTATE OF OLAF HALLINGBY, DECEASED), JANE MAESEL, IRIS PETRY, LEWIS M. SCHOTT, MARY ELLEN HALLINGBY SEIMERS, AND HELEN LOUISE SUTCLIFFE (INDIVIDUALLY AND AS EXECUTRIX OF THE ESTATE OF ERNEST M. SUTCLIFFE, DECEASED) v. THE UNITED STATES

John A. Reilly for plaintiffs. *Richard A. Huettner*, *William J. Ungvarsky* and *Kenyon & Kenyon* were on the brief.

Paul F. Arseneau, with whom was *Assistant Attorney General John W. Douglas*, for defendant.

Before JONES, *Senior Judge*, WHITAKER, *Senior Judge*, LARAMORE, DURFEE, and DAVIS, *Judges*.

ON PLAINTIFFS' MOTION TO ALTER OR AMEND THE OPINION AND JUDGMENT OF THE COURT OR FOR A REHEARING, PLAINTIFFS' MOTION FOR LEAVE TO FILE SUPPLEMENTAL PETITION, AND DEFENDANT'S MOTION FOR AN ORDER COMPELLING CLARIFICATION OF PLAINTIFFS' INCONSISTENT REPRESENTATIONS

PER CURIAM: We have carefully examined plaintiffs' motion to alter or amend the opinion and judgment of the court, dated April 17, 1964, —— Ct. Cl. ——, 330 F. 2d 622, or for a rehearing. We have also reconsidered Findings 39-41 of our Findings of Fact. The facts in this case do not

establish the existence of a contract, express or implied, between defendant and plaintiffs. *Gearon* v. *United States*, 126 Ct. Cl. 548, 115 F. Supp. 910 (1953); *Fulmer* v. *United States*, 144 Ct. Cl. 812 (1959).

Plaintiffs' motion to alter or amend the opinion and judgment of the court or for a rehearing and defendant's motion for an order compelling clarification of plaintiffs' inconsistent representations are denied. Plaintiffs' motion for leave to file supplemental petition is granted as to the claim of patent infringement (by use of cuprous chloride electrodes) from May 2, 1960, to June 22, 1960, with leave to defendant to assert special defenses peculiar to the added period and not already considered by the court. The question of the extent of liability, and the question of liability for the period covered by the supplemental petition, will be determined in further proceedings before a trial commissioner pursuant to Rule 47(c)(2).

U.S. GOVERNMENT PRINTING OFFICE: 1964.